

# Computing

Archives for Informatics and Numerical Computation  
Archiv für Informatik und Numerik

Editorial Board / Herausgeber-Kollegium

R. Albrecht, Innsbruck                            W. Knödel, Stuttgart  
R. L. Constable, Ithaca, N. Y.                W. L. Miranker, Yorktown Heights, N. Y.  
W. Händler, Erlangen                              H. J. Stetter, Wien

Advisory Board / Fachbeirat

G. Alefeld, Calgary                              J. W. Schmidt, Dresden  
R. Ansorge, Hamburg                              L. Stockmeyer, Yorktown Heights, N. Y.  
M. Brockhaus, Wien                              T. G. Szymanski, Murray Hill, N. J.  
H. Brunner, Fribourg                            G. Tinhofer, München  
R. E. Burkard, Köln                              W. Törnig, Darmstadt  
L. Collatz, Hamburg                              G. Vinek, Wien  
W. H. Enright, Toronto                          Hj. Wacker, Linz  
R. Gunzenhäuser, Stuttgart                        H. Werner, Bonn  
K. Mehlhorn, Saarbrücken                        H. Wettstein, Karlsruhe  
K. Nickel, Freiburg i. Br.

Editorial Assistants / Redaktionssekretäre

H. Lehner and E. Weinmüller, Wien

Vol 26, 1981

ISSN 0010-485X

Springer-Verlag Wien New York



The exclusive copyright for all languages and countries, including the right for photomechanical and any other reproductions including microform is transferred to the publisher.

Alle Rechte, einschließlich das der Übersetzung in fremde Sprachen und das der photomechanischen Wiedergabe oder einer sonstigen Vervielfältigung, auch in Mikroform, vorbehalten.

© 1981 by Springer-Verlag/Wien

# Contents / Inhalt

## Contributed Papers / Originalarbeiten

- Ahrens, J. H., Kohrt, K. D.: Computer Methods for Efficient Sampling from Largely Arbitrary Statistical Distributions ..... 19– 31
- Alefeld, G.: Bounding the Slope of Polynomial Operators and Some Applications ..... 227–237
- Anderssen, R. S. s. Paine, J. W.
- Bank, R. E., Sherman, A. H.: An Adaptive, Multi-Level Method for Elliptic Boundary Value Problems ..... 91–105
- Bartusch, M.: An Algorithm for Generating All Maximal Independent Subsets of Posets ..... 343–354
- Best, M., Bräuninger, J., Ritter, K., Robinson, S. M.: A Globally and Quadratically Convergent Algorithm for General Nonlinear Programming Problems ..... 141–153
- Bohlender, G., Kaucher, E., Klatte, R., Kulisch, U., Miranker, W. L., Ullrich, Ch., Wolff v., Gudenberg, J.: FORTRAN for Contemporary Numerical Computation ..... 277–314
- Bräuninger, J., s. Best, M. J.
- Chawla, M. M., Sharma, S. R.: Families of Fifth Order Nyström Methods for  $y'' = f(x, y)$  and Intervals of Periodicity ..... 247–256
- Dekker, K.: Formula Manipulation in ALGOL 68 and Application to Routh's Algorithm ..... 167–187
- Devroye, L.: The Computer Generation of Poisson Random Variables ..... 197–207
- Devroye, L., Klincsek, T.: Average Time Behavior of Distributive Sorting Algorithms ..... 1– 7
- Edenhofer, J., Schmitz, G.: Ein implizites Charakteristikenverfahren zur Lösung von Anfangsrandwertaufgaben bei hyperbolischen Systemen und seine Konvergenz ..... 257–264
- de Hoog, F. R., s. Paine, J. W.
- Kaucher, E., s. Bohlender, G.
- Kioustelidis, J. B.: Optimal Segmented Polynomial  $L_s$ -Approximations ..... 239–246
- Klatte, R., s. Bohlender, G.
- Klincsek, T., s. Devroye, L.
- Kohrt, K. D., s. Ahrens, J. H.
- Kulisch, U., s. Bohlender, G.

- van Leeuwen, J., s. Overmars, M. H.
- Merten, K.: Asymptotisch optimale Relaxationsparameter bei nichtlinearen SOR-Verfahren (Newton-SOR-Verfahren) . . . . . 327–332
- Miranker, W. L., s. Bohlender, G.
- Mühlbacher, J. R.: Full Table Scatter Storage Parallel Searching 9– 18
- Nuding, E.: Schrankentreue Berechnung der Exponentialfunktion wesentlich-nichtnegativer Matrizen . . . . . 57– 66
- Nunen, J. van, Wessels, J.: Solving Linear Systems by Methods Based on a Probabilistic Interpretation . . . . . 209–225
- Overmars, M. H., van Leeuwen, J.: Two General Methods for Dynamizing Decomposable Searching Problems . . . . . 155–166
- Paine, J. W., de Hoog, F. R., Anderssen, R. S.: On the Correction of Finite Difference Eigenvalue Approximations for Sturm-Liouville Problems . . . . . 123–139
- Pönisch, G., Schwetlick, H.: Computing Turning Points of Curves Implicitly Defined by Nonlinear Equations Depending on a Parameter . . . . . 107–121
- Ritter, K., s. Best, M. J.
- Robinson, S. M., s. Best, M. J.
- Schmidt, J. W.: On the  $R$ -Order of Coupled Sequences . . . . . 333–342
- Schmitz, G., s. Edenhofer, J.
- Schneider, N.: Monotone Einschließung durch Verfahren vom Regula-falsi-Typ unter Verwendung eines verallgemeinerten Steigungsbegriffes . . . . . 33– 44
- Schwetlick, H., s. Pönisch, G.
- Sharma, S. R., s. Chawla, M. M.
- Sherman, A. H., s. Bank, R. E.
- Trummer, M. R.: Reconstructing Pictures from Projections: On the Convergence of the ART Algorithm with Relaxation . . . . . 189–195
- Ullrich, Ch., s. Bohlender, G.
- Weber, H., Werner, W.: On the Accurate Determination of Nonisolated Solutions of Nonlinear Equations . . . . . 315–326
- Werner, W., s. Weber, H.
- Wessels, J., s. Nunen, J. van
- Wolfe, M. A.: On the Convergence of Some Methods for Determining Zeros of Order-Convex Operators . . . . . 45– 56
- Wolff v., Gudenberg, J., s. Bohlender, G.

### **Short Communications / Kurze Mitteilungen**

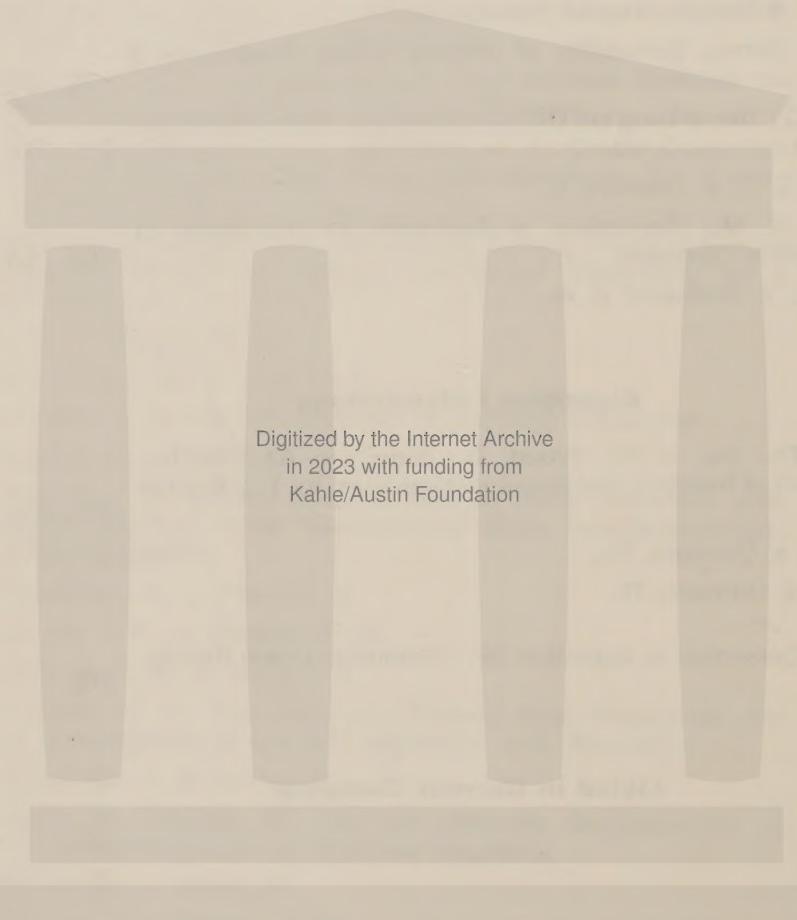
- Berg, L.: On Real Factorizations of Symmetric Circulant Sparse Matrices . . . . . 265–270

Devroye, L., Toussaint, G. T.: A Note on Linear Expected Time Algorithms for Finding Convex Hulls . . . . .	361–366
Filipponi, P.: An Algorithm for Computing Functions of Triangular Matrices . . . . .	67– 71
Gottwald, B. A., Wanner, G.: A Reliable Rosenbrock Integrator for Stiff Differential Equations . . . . .	355–360
Ioakimidis, N. I.: On the Natural Interpolation Formula for Cauchy Type Singular Integral Equations of the First Kind . . . . .	73– 77
Justen, K.: A Note on Regular Resolution . . . . .	87– 89
Rohn, J.: Strong Solvability of Interval Linear Programming Problems . . . . .	79– 82
Schröder, G.: Bemerkung zur Differentiation von intervallwertigen Funktionen . . . . .	271–274
Toussaint, G. T., s. Devroye, L.	
Veselinov, V. M.: Derivatives of Functions by Derivatives of Linear Positive Operators . . . . .	83– 86
Wanner, G., s. Gottwald, B. A.	

### **Algorithm / Algorithmus**

Ottmann, Th., Six, H.-W., Wood, D.: Algorithm 43. The Implementation of Insertion and Deletion Algorithms for 1–2 Brother Trees . . . . .	367–378
Six, H.-W., s. Ottmann, Th.	
Wood, D., s. Ottmann, Th.	
Späth, H.: Correction to Algorithm 39: Clusterwise Linear Regression . . . . .	275

### **Listed in Current Contents**



Digitized by the Internet Archive  
in 2023 with funding from  
Kahle/Austin Foundation



